Battery Storage Applications for Integration of Renewable Energy

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As the application of stationary batteries and other energy storage technologies to power grids has been a focus in Japan since the 1970s, the history of battery technology development in Japan and the changing application for these technologies will initially be discussed. With the increased awareness of the serious threat of climate change, power generated from renewable energy sources is being viewed as an important countermeasure. However, because power output from PV and wind power fluctuates and produces a negative impact on power grids, NEDO has been focusing on several energy storage applications for renewable energy and has promoted several demonstration projects since 2000.

In fiscal year 2007, four major demonstration projects, “Demonstrative Project of Regional Power Grids with Various New Energies,” “Demonstrative Project on Grid-interconnection of Clustered Photovoltaic Power Generation Systems,” “Wind Power Stabilization Technology Development Project” and “Demonstrative Project on New Power Network Systems,” were completed. Another demonstration project, “Verification of Grid Stabilization with Large-scale PV Power Generation Systems,” is ongoing. The results of these demonstration projects and the progress made towards harmonizing renewable energy connected to grids will be presented.

Lastly, NEDO commenced a technology development project in 2006 to develop cheaper, longer-life battery technologies for the future that can reduce renewable energy output fluctuations. The targets of this development project are also introduced.